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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,192	10/31/2003	James K. Middlebrook	31254-2	9975

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EXAMINER

TRIEU, THAI BA

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,192

Applicant(s)

MIDDLEBROOK ET AL.

Examiner

Thai-Ba Trieu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 31-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 36-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/31/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Election filed on August 09, 2004. Applicant hereby elected Group 1 (Claims 1-30 and 36-40) without traverse to prosecute on the merits.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ***"first supercharger housing element"*** and ***"second supercharger element"*** (See Claim 1); ***"stepped surface"*** and ***"irregular surface"*** (See Claim 3) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character **"31"** has been used to designate both **"semi circular recess"** (See Figure 2B and Page 7, lines 7) and **"heat transfer elements"** (See Figure 2C and Page 10, line 11). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: **"64"** (See Figure 3A), **"74" and "76"** (See Figure 2A). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any

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amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities:

- On Page 6, line 4, "***compressor housing 26***" should be replaced by -- ***compressor housing 24*** -- (for correcting typo error).

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Specifically,

- In claim 1, lines 3 and 4, the recitations of "***a first supercharger housing element***" and "***a second supercharger housing element***" are required to be incorporated with the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim **13** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically,

- In line 2, the recitation of "more than one element" renders the claim indefinite, since it is not clear that which elements are to be referenced to. Applicants are required to identify these elements.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19 and 21-22 are rejected under 35 U.S.C. 102(b) as best understood as being anticipated by Smith (Patent Number 5,168,972).

Smith discloses a supercharger (13) comprising:

an impeller (Not shown);

a drive gear coupled to the supercharger; and
a disengagement device (10) disposed between the impeller and the drive gear; wherein the disengagement device permits disengagement between the impeller and the drive gear (See Abstract, and Column 1, lines 5-12);
wherein the disengagement device comprises a one-way clutch (10);
wherein the disengagement device is coupled to the drive gear (See Figure 1).

Claims 19 and 21-23 are rejected under 35 U.S.C. 102(b) as best understood as being anticipated by Roberts (Patent Number 4,145,888).

Roberts discloses a supercharger (10, 14, 12) comprising:

an impeller (15,32);
a drive gear (19, 29, 34) coupled to the supercharger (10, 14, 12); and
a disengagement device (24, 28) disposed between the impeller and the drive gear; wherein the disengagement device permits disengagement between the impeller and the drive gear (See Figure 1);
wherein the disengagement device (24, 28) comprises a one-way clutch (24);
wherein the disengagement device (24, 28) is coupled to the drive gear (19, 29) (See Figure 1);
wherein the disengagement device is a sprag or overrunning clutch (24) (See Figure 1, Column 3, lines 3-13).

Claims 19, 20 and 24 are rejected under 35 U.S.C. 102(b) as best understood as being anticipated by Okada (Patent Number 4,946,014).

Okada discloses a supercharger (6) comprising:

- an impeller (21);
- a drive gear (17, 18, 10, 11) coupled to the supercharger (6); and
- a disengagement device (4) disposed between the impeller (21) and the drive gear (17, 18, 10, 11); wherein the disengagement device permits disengagement between the impeller and the drive gear (See Figures 1-2);
- wherein the impeller is disengaged from the drive gear during deceleration (See Abstract);
- wherein the disengagement device comprises a speed-sensitive mechanism (5) (See Figure 1).

Claims 1-4 are rejected under 35 U.S.C. 102(e) as best understood as being anticipated by Chancey (Pub. Number 2003/0059293 A1).

Chancey discloses a supercharger, comprising:

- a shaft (14) having an axis of rotation (See Figures 2-6F);
- a first supercharger housing element (40); and
- a second supercharger housing element (41);
- wherein the first and second supercharger housing elements meet at a location (Not Numbered) that is substantially parallel to the shaft axis of rotation (See Figures 2-6F);

wherein the location is substantially coplanar with the axis of rotation of a drive-shaft or an impeller shaft (14) (See Figures 2-6F);

wherein the location is selected from a group consisting of: a substantially flat plane formed between the first and second supercharger housing elements (See Figures 2-6F), a substantially flat surface formed between the first and second supercharger housing elements (See Figures 2-6F), a stepped surface formed between the first and second supercharger housing elements, and an irregular surface formed between the first and second supercharger housing elements;

wherein between the first and second supercharger housing elements include semicircular recesses (Not Numbered) that provide an opening in the supercharger dimensioned to receive the shaft (14) (See Figures 2-6F).

Claims 8-11 and 13-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson (Pub. Number 2003/0190242 A1).

The applied reference has a common inventor, Mr. Anderson with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this

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application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Anderson discloses a supercharger, comprising:

a rotatable shaft (68) (See Figures 9-14 and 16);

at least one bearing assembly (70) disposed around a portion of the rotatable shaft (68) (See Figures 9-14 and 16);

a housing element (22) surrounding the bearing assembly (70); and

an intermediate member (72) disposed between the bearing assembly and the housing element (See Figures 9-14 and 16);

wherein the intermediate member comprises a ferrous-based material (See Paragraph [0068]);

wherein the ferrous-based material is selected from a group consisting of: a pay iron, a G2-grade gray iron, a DURA-BAR, a free machining steel, a 12L14 steel, a 1018 steel, a ferrous based iron, a steel, and a steel alloy (See Paragraph [0068]);

wherein the bearing assembly has a predetermined coefficient of thermal expansion; and the intermediate member has a coefficient of thermal expansion that is substantially similar to the coefficient of thermal expansion of the bearing assembly (See Paragraph [0067]);

wherein the intermediate member (72) is selected from a group consisting of: a sleeve, a sheath, a single element, and more than one element (See Figures 9-14 and 16);

wherein the housing element is comprised of aluminum (See Paragraph [0054];

wherein the intermediate member (72) is substantially cylindrical and replaceable (See Figures 9-14 and 16);

wherein the bearing assembly comprises at least two spring preloaded bearing sets (See Paragraph [0062]); and

wherein the bearing assembly comprises at least two substantially rigidly preloaded bearing sets(See Paragraph [0062]).

Claims 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Joco (Patent Number 4,705,463).

Joco discloses a supercharger, comprising:

an impeller shaft (20);

an impeller (12) coupled to the impeller shaft (20);

at least one bearing assembly (50) positioned around a portion of the impeller shaft (20);

a spacer assembly (18) positioned between the impeller (12) and the bearing assembly (50) (See Figures 2-4);

wherein the spacer assembly further comprises an impeller spacer positioned adjacent to a base of the impeller (See Figures 2-4);

wherein the spacer assembly (18) comprises a tubular spacer positioned around a portion of the impeller shaft (See Figure 2);

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wherein the spacer assembly (18) is structured to couple the impeller (12) to the bearing assembly (50) (See Figures 2-4).

Claims 36-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Arnold et al. (Patent Number 6,062,028).

Arnold discloses a supercharger, comprising:

a compressor housing (16) , the compressor housing comprising at least three components; wherein the at least three components are selected from a group consisting of: a main housing (16), a shroud (30) and a diffuser (32) (See Figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-6 are is rejected under 35 U.S.C. 103(a) as being unpatentable over Chancey (Pub. Number 2003/0059293 A1), in view of Horler (Patent Number 4,541,784).

Chancey discloses the invention as recited above; however, Chancey fails to disclose a lubrication reservoir disposed within the supercharger wherein the lubrication reservoir is separate and detachable.

Horler teaches that it is conventional in the centrifugal oil exhaust turbocharger art, to utilize a lubrication reservoir (11) disposed within the supercharger wherein the lubrication reservoir is separate and detachable (See Figure).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a lubrication reservoir disposed within the supercharger wherein the lubrication reservoir is separate and detachable, as taught by Horler, since the use thereof would have made ease of serviceability of removing the reservoir and changing oil to lubricate and cool down the supercharger.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chancey (Pub. Number 2003/0059293 A1), in view of Horler (Patent Number 4,752,193).

Chancey discloses the invention as recited above; however, Chancey fails to disclose the lubrication reservoir including a heat transfer element.

Horler teaches that it is conventional in the centrifugal oil exhaust turbocharger art, to utilize the lubrication reservoir including a heat transfer element (Read as oil cooler 16) (See Figure 1).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the lubrication reservoir including a heat transfer

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element, as taught by Horler, to improve the efficiency of the turbocharger, since the use thereof would have cooled down the oil which will be used to lubricate the bearings of the turbocharger.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (Pub. Number 2003/0190242 A1), in view of Troyer (Pub. Number 2003/0145656 A1).

Anderson discloses the invention as recited in the rejection of claim 8; however, Anderson fails to disclose the intermediate member having a coefficient of thermal expansion that may range between about 0.000004 and 0.000007 in/in-°F.

Troyer teaches that it is conventional in the metal material art, to utilize the member having a coefficient of thermal expansion that may range between about 0.000004 and 0.000007 in/in-°F (See Abstract, lines 6-9, and Paragraph [0004]).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the intermediate member having a coefficient of thermal expansion that may range between about 0.000004 and 0.000007 in/in-°F, as taught by Troyer, to control the accuracy of the rotation movement, in the Anderson device.

Claim 25 is rejected under 35 U.S.C. 102(b) as being unpatentable over Smith (Patent Number 5,168,972), or Roberts (patent Number 4,145,888), or Okada (Patent Number 4,946,014), in view of Man et al. (Pub. Number 2002/0117860 A1).

Smith/Roberts/Okada discloses the invention as recited above; however, Smith/Roberts/Okada fails to disclose the disengagement device comprising a centrifugal clutch.

Man teaches that it is conventional in the power train art, to utilize a centrifugal clutch (1236) (See Figure 13, Paragraph [0132]).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a centrifugal clutch, as taught by Man, to secure the rotational speed of the Smith/Roberts/Okada turbocharger/supercharger.

Claim 26 is rejected under 35 U.S.C. 102(b) as being unpatentable over Okada (Patent Number 4,946,014), in view of Roberts (Patent Number 4,145,888).

Okada discloses the invention having the disengagement device comprising a speed-sensitive mechanism and clutch mechanism, as recited above, however, Okada fails to disclose the clutch being over running mechanism.

Roberts teaches that it is conventional in the accessory drive in the turbocharger art, to utilize the over-running mechanism (24).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the over-running mechanism, as taught by Roberts, to improve the control of the rotational speed of the Okada turbocharger.

Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al. (Patent Number 6,062,028).

The recitation of "the at least three components being manufactured separately and coupled together by force-fit or friction-fit" in claims 38 and 39, is considered as a product by process claim, which is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to overcome forward with evidence establishing a obvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983).

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al. (Patent Number 6,062,028), in view of Design choice.

Arnold discloses the invention as recited above, and further discloses the at least three components comprising a curved diffuser passageway; however, Arnold fails to disclose a curvature ranging between about 20° to about 60°, in the axial direction.

One having an ordinary skill in the turbocharger art would have found a curvature ranging between about 20° to about 60° as a matter of design choice depending on the design of the turbocharger diffuser. Moreover, there is nothing in the record which establishes that the claimed curvature ranging between about 20° to about 60°, presents a novel or unexpected result (See *In re Kuhle*, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

Conclusion

The IDS (PTO-1449) filed on October 31, 2003 has been considered. An initialized copy is attached hereto.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

However, the examiner's new telephone number (751) 272-4867 will become effective after the expected changeover date of November 22, 2004.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
September 14, 2004


Thai-Ba Trieu
Patent Examiner
Art Unit 3748